

CLAIMS

1. A method for providing a thin film (2) on a substrate (1) in order to obtain a product (9), said film (2) being formed by a material (3), characterized in that it comprises the steps of:

- 5           – dispersing said material (3) in said substrate (1) in order to obtain a mixture (10);
- modeling said mixture (10);
- conditioning said mixture (10).

2. The method according to claim 1, characterized in that said  
10 modeling step comprises a step for forming, on a first surface (10a) of said mixture (10), protrusions (7) and recesses (6).

3. The method according to claim 2, characterized in that said conditioning step comprises a step of causing said material (3) to emerge on a second surface (1a), said step of causing said material to emerge  
15 comprising the step of smoothing said mixture (10) in order to smooth any surface roughness, said surface roughness further comprising said protrusions (7).

4. The method according to claim 3, characterized in that said smoothing step comprises a step of exposing said mixture (10) to a solvent.

20           5. The method according to claim 3, characterized in that said smoothing step comprises a step of heating said mixture (10).

6. The method according to any one of the preceding claims 3 to 5, characterized in that it comprises a step of treating, chemically and/or by means of any physical treatment, said emerged material (3) in order to  
25 modify its intrinsic properties.

7. The method according to claim 6, characterized in that said chemical treatment step comprises a step for coating said emerged material (3) with a protective layer.

8. The method according to any one of the preceding claims 1 to 7,  
30 characterized in that said modeling step comprises a step of etching said

mixture (10).

9. The method according to any one of the preceding claims 1 to 8, characterized in that said modeling step comprises a step of pressure molding said mixture (10).

5        10. The method according to any one of claims 8 or 9, characterized in that said modeling step comprises a step of heating said mixture (10) in order to soften said substrate (1).

11. The method according to any one of the preceding claims 1 to 7, characterized in that said modeling step comprises a step of replica molding  
10    said mixture (10).

12. The method according to any one of the preceding claims 1 to 11, characterized in that said substrate (1) comprises a polymeric mixture.

13. The method according to any one of the preceding claims 1 to 11, characterized in that said substrate (1) comprises a polymer.

15        14. The method according to claim 13, characterized in that said polymer comprises polycarbonate.

15. The method according to any one of the preceding claims 1 to 11, characterized in that said substrate (1) comprises a copolymer.

16. The method according to any one of the preceding claims 1 to 11,  
20    characterized in that said substrate (1) comprises a molecular material.

17. The method according to any one of the preceding claims 1 to 11, characterized in that said substrate (1) comprises biological molecules.

18. The method according to any one of the preceding claims 1 to 11, characterized in that said substrate (1) comprises a gel.

25        19. The method according to any one of the preceding claims 1 to 11, characterized in that said substrate (1) is an organic material.

20. The method according to any one of the preceding claims 1 to 11, characterized in that said material (3) is an organic material.

21. The method according to any one of the preceding claims 1 to 11,  
30    characterized in that said material (3) is a biological material.

22. The method according to any one of the preceding claims 1 to 11, characterized in that said substrate (1) is an inorganic material.

23. The method according to any one of the preceding claims 1 to 11, characterized in that said material (3) is an inorganic material.

5 24. The method according to any one of the preceding claims 1 to 11, characterized in that said material (3) is a biological material.

25. The method according to any one of the preceding claims 1 to 11, characterized in that said substrate (1) is soluble in a solvent.

10 26. The method according to any one of the preceding claims 1 to 11, characterized in that said material (3) is a conducting material and the resulting product (9) is an electrode, said film (2) being a conducting film.

27. The method according to claim 26, characterized in that said conducting material comprises a metal or metallic particles.

15 28. The method according to any one of the preceding claims 1 to 11, characterized in that said material (3) is a semiconducting material and the resulting product (9) is an electrode.

29. The method according to any one of the preceding claims 1 to 11, characterized in that said material (3) is a semiconducting material and the resulting product (9) is an electronic device or photovoltaic cell or light-emitting diode, said film (2) being a semiconducting film.

30. The method according to any one of the preceding claims 1 to 11, characterized in that said material (3) is a magnetic material and the resulting product (9) is a magnetically readable memory element.

25 31. The method according to claim 26, characterized in that said magnetically readable memory element is rewritable, said magnetic material being ferromagnetic.

32. The method according to any of the preceding claims 1 to 11, characterized in that said material (3) has optical properties and the resulting product (9) is an optically readable memory element.

30 33. The method according to claim 32, characterized in that said

optically readable memory element is rewritable.

34. The method according to any of the preceding claims 1 to 33, wherein the parameters of temperature and humidity are fixed, characterized in that said production of the film (2) is regulated by acting on the duration  
5 of said conditioning step.

35. The method according to any of the preceding claims 1 to 33, wherein the parameters of temperature and time are fixed, characterized in that said production of the film (2) is regulated by acting on the humidity parameter in said conditioning step.

10 36. The method according to any of the preceding claims 1 to 33, wherein the parameters of humidity and time are fixed, characterized in that said production of the film (2) is regulated by acting on the temperature parameter in said conditioning step.

15 37. A spatially structured chemical pattern, characterized in that it is obtained according to the method described in any of the preceding claims 1 to 11, said pattern being constituted by said material (3).

38. An electrode, characterized in that it is obtained according to the method described in any of the preceding claims 1 to 11, said material (3) being a conducting material.

20 39. An electrode, characterized in that it is obtained according to the method described in any of the preceding claims 1 to 11, said material (3) being a semiconducting material.

40. The electrode according to claim 38, characterized in that said conducting material is metallic.

25 41. A magnetically readable memory element, characterized in that it is obtained according to the method described in any of the preceding claims 1 to 11, said material (3) being a magnetic material.

42. A magnetically readable memory element according to claim 41, characterized in that it is rewritable, said magnetic material being  
30 ferromagnetic.

43. An optically readable memory element, characterized in that it is obtained according to the method described in any of the preceding claims 1 to 11, said material (3) having optical properties.

44. An optically readable memory element according to claim 43,  
5 characterized in that it is rewritable.

45. The method according to the preceding claims 1 to 36, the chemical pattern according to claim 37, the electrode according to claims 38 to 40, the magnetically readable memory element according to claims 41 and 42, the optically readable memory element according to claims 43 and  
10 44, and according to what is described and illustrated with reference to the figures of the accompanying drawings and for the described purposes.